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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 09/418,323
Filing Date: October 14, 1999
Appellant(s): LARSSON ET AL.

Joseph A. Rhoa
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 09/27/2005 appealing from the Office action mailed 01/27/2005.

(I) Real Party in Interest

The appellant's statement of the real party in interest contained in the brief is correct.

(II) Related Appeals and Interferences

The appellant's statement of the related appeals and interferences contained in the brief is correct.

(III) Status of Claims

The appellant's statement of the status of the claims contained in the brief is correct.

(IV) Status of Amendments

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(V) Summary of Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(VI) Grounds of Rejection to be Reviewed on Appeal

The following ground(s) of rejection are applicable to the appealed claim 15-32:

Claim 15-32 rejected under 35 U.S.C. 103(a) as being unpatentable over Percival et al. (Percival), Patent No. 5,991,816, and further in view of Keith et al. (Keith), Patent No. 5,966,465.

As to claim 15, Percival discloses a method of compressing an image at a server, storing a compressed representation of the image at the server and transmitting at least part of the compressed representation of the image from the server to at least one client, the method comprising:

transforming the image (col. 6, lines 10-26: a digitized image is transformed);

after said transforming, subdividing each block (col. 6, lines 53-64: the digitized image is divided into 2x2 pixel blocks);

compressing, at least a first block and at least a second block into different independently decodable coding units, respectively (col. 6, line 44 – col. 7, line 29: a digitized image composed of image pixel blocks A, B, C, and D, and each of pixel block describes the color or intensity of the underlying image at comparable coordinates, and image pixel blocks A, B, C, and D are considered as independently decodable coding units; the transformation provides image data that is susceptible to additional compression techniques);

after said compressing, storing at least one of the first and second coding units on the server (col. 8, line 63 – col. 9, line 6:once the image has been transformed, it is stored in the memory of the image transmitting server 12);

receiving a request at said server (col. 9, lines 29-52: image transmitting server 12 awaits a request for an image as indicated at decision block 101 of Figure 2; and col. 10, lines 45-64: allowing a user to select a portion of the image which refers to image data relating to the image); and

responsive to the request, transmitting from the server to at least one client the coding unit(s) corresponding to the request so that upon receiving the request the coding unit(s) corresponding to the request are transmitted to the at least one client without the server having to employ further entropy encoding with respect thereto (col. 8, line 63 – col. 9, line 6);

However, Percival does not disclose transforming the image into a frequency domain to form frequency domain coefficients; subdividing the frequency domain coefficients corresponding to the image into at least one block; each block comprising at least one transformed coefficient; and compressing via entropy coding. In the same field of endeavor, Keith discloses image data 101 is received and transformed to produce a series of coefficients or different frequency subbands such as LL frequency subband, LH, HL, or HH subbands, which representing a multi-resolution decomposition of the image, and each frequency subband can be transformed or decomposed into subbands (blocks), and the coefficients generated as a result of the wavelet decomposition are entropy coded in an entropy coding 106 (col. 8, line 47 – col. 9, line 39, col. 16, line 11- col. 18, line 49. Since Keith discloses transforming an image data, which is similar to the system of Percival, thus, it would have been obvious to one of

ordinary skill in the art at the time the invention was made to combine the teachings of Percival and Keith to include transforming the image into a frequency domain to form frequency domain coefficients; subdividing the frequency domain coefficients corresponding to the image into at least one block; each block comprising at least one transformed coefficient; and compressing via entropy coding. Keith suggests that transforming an image would provide good energy compaction and also provide more flexible multi-use image formats.

As to claim 16, Percival and Keith (Percival-Keith) disclose wherein the request describes at least one region of interest of the image, wherein the server identifies which of stored coding units contain information transformed coefficients needed to reconstruct said region of interest, and the server transmits the identified coding unit(s) needed to reconstruct the region of interest to the at least one client (Percival, col. 4, line 31 – col. 5, line 5, col. 9, lines 29-54; Sato, col. 4, line 41 – col. 5, line 5).

As to claim 17, Percival-Keith disclose wherein the request defines at least one coding unit, and the server transmits the at least one coding unit that is defined in the request to the at least on client (Percival, col. 10, line 65 – col. 11, line 29).

As to claim 18, Percival-Keith disclose wherein the request contains information identifying region(s) of less interest of the image that the at least one client does not want to receive (Percival, col. 10, line 46 – col. 11, line 3).

As to claim 19, Percival-Keith wherein the region of interest is defined by a mask in the transform domain (Percival, col. 9, lines 39-52).

As to claim 20, Percival-Keith disclose wherein the region(s) of less interest is defined by a mask in the transform domain (Percival, col. 10, line 65 – col. 11, line 37).

As to claim 21, Percival-Keith disclose wherein the request comprises information identifying at least one coding unit that the at least one client does not want to receive (Percival, col. 10, line 46 – col. 11, line 29).

As to claim 22, Percival-Keith disclose wherein, in response to the request, the server only transmits coding units that have not already been transmitted to the at least one client (Percival, col. 2, lines 49-63: a user, prior to completion of the transmission of the image data of the first field, may view the image and provide instructions defining a second field, and these instructions may be received by the transmitting site causing it to continue the ordered transmission of the image data, excluding data not in the second field).

As to claim 23, Percival-Keith disclose wherein the request defines at least one coding unit, and the server only transmits in response to the request coding units that have not already been transmitted to the at least one client (Percival, col. 11, lines 42-54).

As to claim 24, Percival-Keith disclose wherein the image is transformed into the frequency domain using at least a wavelet transform (Keith, col. 7, lines 62-67 and col. 9, lines 5-40 and col. 16, lines 22-32).

As to claim 25, Percival-Keith disclose wherein the blocks are arbitrarily shaped blocks (Keith, col. 16, line 23 – col. 17, line 56).

As to claim 26, Percival-Keith disclose wherein the image is quantized (Keith, col. 9, lines 5-16).

Claims 27-32 are corresponding to server and client apparatus containing similar limitations as discussed in claims 15-26; therefore, they are rejected under the same rationale.

(VII) Argument

The examiner summarizes the various points raised by the appellant and addresses replies individually.

As per appellant's arguments filed on September 27, 2005, the appellant argued in substance:

Claim 15

A) There is no suggestion to combine the two references as alleged in the Office Action (See page 9 of the Brief).

In reply to argument A of claim 15, Appellant's argued that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Percival discloses in Abstract and col. 2, lines 41-63 that image data may be transformed before transmitting it to a reception site, which is similar to transforming an image data of Keith (col. 9, lines 5-41), thus Percival and Boag are analogous arts. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Keith and Percival to include transforming the image into a frequency domain to form frequency domain coefficients; subdividing the frequency domain coefficients corresponding to the image into at least one block; each block comprising at least one transformed coefficient; and compressing via entropy coding. Keith suggests that transforming an image would provide good energy compaction and also provide more flexible multi-use image formats.

B) Percival does not divide the image into separately decodable compressed coding unit as alleged by the Office Action (See page 10 of the Brief).

In reply to argument B of claim 15, Percival discloses the digitized image is divided into 2x2 pixel blocks 68, each single pixel block 68 in which the pixel values will be designated by the variables A, B, C, D and these are considered as independently decodable coding units, and a compression of the image represented by the pixel block 68 by a factor of four (col. 6, line 50 – col. 7, line 29). Percival also discloses in col. 12, lines 47-51 that the image data is compressed prior to its transmission.

C) Keith fails to disclose or suggest that the image is stored compressed (via entropy coding), so that the compression is done before storing and also before receiving a request for the information (See page 11 of the Brief).

In reply to argument C of claim 15, in response to Appellant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Also, Appellant did not claim the cause and effect in ordering of all the limitations in claim 15. In this case, Percival discloses the transformation provides image data that is susceptible to additional compression techniques such as the compression of the image represented by the pixel block 68 by the factor of four (Percival, col. 6, lines 33-34 and col. 7, lines 24-28). In addition, Percival discloses that once the image has been transformed and susceptible to

additional compression techniques, it is stored in the memory of the image transmitting server 12 (Percival, col. 8, lines 63-65), and thus the transforming and compressing steps are done before storing step. However, Percival does not explicitly disclose compressing via entropy coding. In the same field of endeavor, Keith discloses in the Abstract that an entropy coder performs entropy coding on the embedded codestream to produce the compressed data stream. Since Keith discloses transforming an image data, which is similar to the system of Percival, thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Percival and Keith to include compressing via entropy coding. Keith suggests that compressing an image would provide good energy compaction and also provide more flexible multi-use image formats.

Claim 28

A) Percival does not use "independently decodable coding units being defined as objects compressed by using entropy coding" as required by claim 28 (See page 11 of the Brief).

In reply to argument A of claim 28, in response to Appellant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). In this case, Examiner's rejected "independently

decodable coding units" by using Percival reference and "entropy coding" by using Keith reference. This argument is exactly the same argument C of claim 15, therefore, please see the response to argument C of claim 15 above.

B) Since Percival teaches that compression should be done after a request for part of the image is received (the opposite of what claim 15 requires), the reference teaches away from the invention of claim 28 (See page 12 of the Brief).

In reply to argument B of claim 28, Appellant did not claim the cause and effect in ordering of all the limitations in claim 28, and there is no signs of claim 28 claiming that a request step from the client to the server must happen after the compressing step or the compressing step occurs before the requesting step. Claim 28 comprises four steps of means plus functions, and one of ordinary skill in the art would interpret that any of the four steps can occur in any order. Percival discloses that image data is transformed (Percival, col. 6, lines 10-25), the transformation provides image data that is susceptible to additional compression techniques (Percival, col. 6, lines 33-34), once the image has been transformed and susceptible to additional compression techniques, it is stored in the memory of the image transmitting server (Percival, col. 8, lines 63-65), and the transformation process thus can be performed in advance prior to any requests being received (Percival, col. 9, lines 4-6).

C) Keith fails to disclose or suggest that the image is stored compressed (via entropy coding), so that the compression is done before storing and also before receiving a request for the information.

In reply to argument C of claim 28, in response to Appellant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). In this case, Examiner's rejected the limitation "independently decodable coding units" by using Percival reference and the limitation "entropy coding" by using Keith reference. Since this argument is similar to argument C of claim 15 and argument B of claim 28, therefore please see reply to argument C of claim 15 and reply to argument B of claim 28 above.

(VIII) Claims Appendix

The copy of the appealed claims contained in the claims appendix pages 14-17 is correct.

(IX) Evidence Appendix

There is none contained in evidence appendix.

(X) Related Proceeding Appendix

The appellant's statement of the related proceeding appendix contained in the brief is correct.

For the above reasons, it is respectfully submitted that the rejections should be sustained.

Respectfully Submitted,

CN

Chau Nguyen

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PRIMARY EXAMINER
12/17/2005

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